Stiphodon oatea, a new species of freshwater goby (Gobioidei: Sicydiinae) from Marquesas Islands, French Polynesia

by

Philippe KEITH (1), Eric FEUNTEUN (2) & Erick VIGNEUX (3)

ABSTRACT. - *Stiphodon oatea*, a new goby species, is described on the basis of material collected from Tahuata, Marquesas Islands, French Polynesia. It has 9 segmented rays in the second dorsal fin, usually 14 pectoral rays, 40-49 tricuspid premaxillary teeth, 2-3 symphyseal teeth, and it is distinguished from all other congeners in having a higher number of lateral and predorsal scales, longer fins in males and a stocky body. Males have yellow green colours on head and back, bright red dorsal, caudal and anal fins, and 8 to 10 vertical brown stripes on flanks; females are greyish to brownish.

RÉSUMÉ. - *Stiphodon oatea*, une espèce nouvelle de gobie d'eau douce des îles Marquises, Polynésie française (Gobioidei: Sicydiinae).

Stiphodon oatea, espèce nouvelle, est décrite à partir de matériel collecté aux îles Marquises (Polynésie française). Elle se distingue des autres espèces du genre en ayant neuf rayons segmentés dans la seconde nageoire dorsale, 14 rayons aux nageoires pectorales, 40-49 dents prémaxillaires tricuspides, 2-3 dents symphyséales, plus d'écailles en séries longitudinale et prédorsale, des nageoires plus longues chez les mâles et un corps plus trapu. Les mâles ont la tête et le dos de couleur vert-jaune, les nageoires dorsales, anale et caudale rouge vif et 8 à 10 bandes verticales brunes sur les flancs; les femelles sont grises à brun clair.

Key words. - Gobioidei - Sicydiinae - *Stiphodon oatea* - Marquesas - French Polynesia - Freshwater - New species.

French Polynesia covers a vast area of the Central Pacific located near the eastern limits of the Indo-West Pacific Faunal Province. It consists of 118 islands ranging from high volcanic islands to low coral islands and atolls. These various islands types comprise an emerged area of 3,629 km^2 scattered over an oceanic area of 2,500,000 km^2. The islands of French Polynesia are a part of five archipelagos (Austral Islands, also known as Tubuai Islands; Gambier Islands; Marquesas Islands; Society Islands; Tuamotu Archipelago) dispersed along a more or less northwest-southeast.

The importance of hydrographical networks on French Polynesia islands increases with their altitude and size. On the one hand, atolls are characterised by low elevation being only slightly above sea level and absence of running fresh water. On the other hand the high islands such as Tahiti have numerous streams and the largest water sheds (detailed in Keith *et al*., 2002a). Many freshwater species occur in this area and a number were described in the last 15 years (Watson, 1995; Parenti and Maciolek, 1996; Keith and Vigneux, 2002; Keith *et al*., 2002b).

Thirty-seven species of freshwater fishes are known to occur in French Polynesian streams. Freshwater gobies are present in all four high island archipelagos and represented by 13 species considered to be French Polynesian endemics: four have been found only in the Austral Islands (*Stiphodon discotorquatus* Watson, 1995, *Stiphodon julieni* Keith, Watson & Marquet, 1991, *Stenogobius randalli* Watson, 1991, *Sicyopterus rapa* Parenti & Maciolek, 1996); at least nine species are known only from the Marquesas Islands (*Lentipes rubrofasciatus* Maugé, Marquet & Laboute, 1992, *Sicyopus bitaeniatus* Maugé, Marquet & Laboute, 1992, *Sicyopterus marquesensis* Fowler, 1932, *Stiphodon tuivi* Watson, 1995, *Stiphodon oatea* (new species), *Stenogobius marqueti* Watson, 1991, *S. caudimaculosus* Watson, 1991, *S.* cf. *caudimaculosus* Watson, 1991, *S. squamosus* Watson, 1991) (as listed in Keith *et al*., 2002a).

Stiphodon was reviewed by Watson (1995) in French Polynesia and by Keith *et al*. (2002b) from the Austral islands. The purpose of this paper is to provide a description of *Stiphodon oatea*, new species, a new freshwater goby known only from Marquesas Islands, French Polynesia.

METHODS

Methods follow those in Keith and Marquet (2007) and

(1) Muséum national d'Histoire naturelle, DMPA, CP 026, Ichtyologie, 43, rue Cuvier, F-75231 Paris CEDEX 05, FRANCE. [Keith@mnhn.fr]

(2) Muséum national d'Histoire naturelle, DMPA, Centre de recherche et d'enseignement sur les systèmes côtiers, 38 rue du Port Blanc, 35800 Dinard, FRANCE.

(3) Onema, Le Paraclet, BP 5, 80440 Boves, FRANCE.

Watson *et al*. (2005). All lengths of specimens are expressed to the nearest tenth of a millimetre (mm) and then that value rounded to the nearest whole percent of standard length (SL). Jaw length is measured from anterior tip of upper jaw to posterior edge of maxilla. Scales in a lateral series are counted from upper pectoral base and along the middle of the body laterally to the central hypural base. Body depth is measured from anterior base of second dorsal fin to belly; this measurement is taken only from males as females vary considerably from gravid to non-gravid state. Transverse back series refers to scales counted from the first scale anterior to second dorsal fin, in a diagonal manner, posteriorly and ventrally to the anal fin base or to the ventralmost scale. Transverse forward series refers to scales counted from the first scale anterior to second dorsal fin, in a diagonal manner, anteriorly and ventrally to the centre of belly or to the ventralmost scale. Zigzag series refers to scales on the narrowest region of the caudal peduncle counted from the dorsalmost scale to the ventralmost scale in a zigzag (alternating) manner.

Abbreviations used to represent the cephalic sensory pore system follow Akihito (1986). Abbreviations used to represent collections and institutions cited follow Leviton *et al*. (1985), except BLIH (Biological Laboratory, Imperial Household, Chiyoda-ku, Tokyo, Japan) formerly LICPP.

Counts and morphometrics are summarized in tables I, II and III.

Comparative material

The new species is compared, in text and tables, with species from French Polynesia, and these of nearby area which have usually 14 pectoral rays, 9 segmented rays in the second dorsal fin and first and second dorsal fins spines without stripes. Six species are concerned.

Stiphodon discotorquatus Watson, 1995: MNHN 1994-48 (holotype), male (26.1 mm SL), MNHN 1994-49 (paratypes), 2 females (19.4-21.1 mm), Rurutu, Austral Islands, March 1985, G. Marquet; MNHN 1989-1767 (paratype), male (23.0 mm), Tubuai, Austral Islands, March 1985, G. Marquet.

Stiphodon elegans (Steindachner, 1880): NWM 57858-2 (lectotype), female (28.4 mm SL), NWM 57858-1 (paralectotype), male (28.1 mm), NWM 57858-3 (paralectotype), female (25.2 mm), NWM 57858-4 (paralectotype), female (20.9 mm), Society Islands, 1874; MNHN 1989-1761, 16 (12.5-37.4 mm), 13 females, 3 juveniles; MNHN 1989-1769, 15 males (23.4-36.9 mm): Moorea, Society Islands, 12 Oct. 1984, G. Marquet; MNHN 1989-1762, 33 (17.7-40.3 mm), 28 females, 4 males, 1 juvenile; MNHN 1989-1768, 17 males (22.5-42.2 mm), Rurutu, Tubuai Islands, March 1985, G. Marquet; MNHN 1992-118, 2 males (35.2-36.9 mm), Opunohu River, Moorea, Society Islands, Oct. 1984, G. Marquet; MNHN uncat., 5, 2 males, 3 females, Western Samoa, July 2008; CAS 67524, male (31.3 mm), Leaveave N., Tutuila Island, American Samoa, 6 Oct. 1971, J.A. Maciolek; CAS 67525, 4 females (21.8-25.3 mm), Leafu-Leone, 100 m above falls, Tutuila Island, American Samoa, 12 Oct. 1971, J.A. Maciolek; LACM 35511-1, 14 (19.5-36.4 mm), 5 males, 9 females, Apia, Upolu Island, Fatumia pool in lava rock at Methodist Mission Church, west side of island, Western Samoa, 8 Jun. 1975, W. Lasky; IRSNB 12.826, 4 (24.4-33.2 mm), 2 males, 2 females, Society Islands, Tahiti, Tiarei-Mahaena district, Faa-Rahi River; 21 Aug. 1939, G.A. de Witte.

Stiphodon tuivi Watson, 1995: MNHN 1989-1766 (holotype), male (27.6 mm SL), Nuku Hiva, Dec. 1986, G. Marquet; MNHN 1994-50 (paratypes), 31 males (15-32.2 mm), same data as holotype; MNHN 1994-511 (paratypes), 8 (12.6-28.1 mm), 7 males, 1 juvenile, same data as holotype; MNHN 1989-615 (paratypes), 21 (11.9-25.1 mm), 1 male, 18 females, 2 juveniles, Ua Huka, P.O.M.; MNHN 1989-1763, 5 (paratypes) (21.4-27.7 mm), 1 male, 4 females, Ua Pou, Dec. 1986, G. Marquet; MNHN 1989-1765 (paratypes), 11 (12.1-25.6 mm), 9 females, 2 juveniles, Ua Huka, 20 Dec. 1986, G. Marquet; MNHN 1989-1764 (paratypes), 53 (13.9-29.8 mm), 51 males, 2 juveniles, Hiva Oa, Jan. 1987, G. Marquet.

Stiphodon julieni Keith, Watson & Marquet, 2002: MNHN 2002-3 (holotype), male (49.8 mm SL), Panui River (27°35968 S - 144°21078 W), Rapa, French Polynesia, G. Marquet coll., Jun. 2001. MNHN 2002-4 (paratype), male (47.3 mm SL), MNHN 2002-5 (paratype), male (48.1 mm SL), MNHN 2002-6 (paratype), male (50 mm SL), MNHN 2002-7 (paratype), male (47.3 mm SL), MNHN 2002-8 (paratype), female (53.4 mm SL), MNHN 2002-9 (paratype), female (47.8 mm SL), MNHN 2000-10 (paratype), female (43.7 mm SL), same data as holotype.

Comparative material for *S. hydoreibatus* and *S. sapphirinus* is that listed in Keith and Marquet (2007) and Keith *et al*. (2007b).

STIPHODON OATEA, NEW SPECIES

(Fig. 1, Tabs. I-III)

Material examined

Five specimens collected from Marquesas totalling 2 males and 3 females with a size range of 26.1-40.2 mm SL; largest male 28.2 mm SL, largest female 40.2 mm SL.

Holotype. - MNHN 2009-160, male (26.1 mm SL); Tahuata, Marquesas (French Polynesia); 16 Feb. 2000; Keith P., Feunteun E. and E. Vigneux coll.

Paratypes. - MNHN 2009-161, 1 male, 3 females (28.2-40.2 mm SL); same data as holotype.

Diagnosis

A combination of characters distinguishes *Stiphodon oatea*. The species has 14 pectoral rays, 9 segmented-rays in the second dorsal fin and 40-49 premaxillary teeth. There are 12-17 scales in predorsal midline and 33-39 in longitudinal series. The males have more and larger symphyseal teeth than females (3 *vs*. 2-3). The species has also (13-16) scales in transverse forward series and longer fins in males. The species is squatter than other *Stiphodon* species and the coloration of males is characteristic: they have yellow green

colours on head and back, bright red dorsal, caudal and anal fins and 8 to 10 vertical brown stripes on flanks. The females are greyish to brownish.

Description

Scale counts in *Stiphodon oatea* and related species are given in table II, number of premaxillary teeth in table I, and morphometrics in table III. Below, the holotype counts are given first and followed in brackets, if different, by the paratype counts.

Dorsal fins VI-I,9, first dorsal fin separate from and higher than second dorsal fin; spines 3 and 4 of first dorsal fin longer and the third is filamentous. Anal fin I,10 and directly opposite to second dorsal fin. Pectoral fin has 14 rays, upper-

Table I. - Premaxillary teeth in *Stiphodon oatea* and related species.

	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
S. oatea																	2		1		1					1				
S. sapphirinus								1	3	5	1	3	-	4	5	7	1	3	2	1	2	-	-	1	1	1	-	1		
S. hydoreibatus												2	-	2	1	3	3	1	1	1	-	1	2	-	-	-	1	-	1	
S. tuivi											2	-	1	6	1	12	7	14	7	11	6	6	7	4	4	2	2	-	1	1
S. julieni										1	1	2	2	1	1															
S. discotorquatus					1	-	-	-	2	1																				
S. elegans	3	5	7	7	15	15	26	13	10	6	5	1	1	-	-	-	2													

Table II. - Scale counts in *Stiphodon oatea* and related species.

	Lateral scales																		
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
S. oatea													1	2	-	-	-	1	1
S. sapphirinus	1	1	2	2	4	5	5	9	3	3	3	2	1	1	1				
S. hydoreibatus			1	-	-	2	2	1	2	2	2	3	1	-	1				
S. tuivi			1	4	4	3	6	6	8	10	6	6	7	4	7	3	2		
S. julieni											1	1	2	2	1	1			
S. discotorquatus								1	-	1	-	1	-	1					
S. elegans									1	1	6	8	17	19	27	13	7	2	1

	Transverse back series									
	6	7	8	9	10	11	12	13	14	15
S. oatea					3	2				
S. sapphirinus					40	1	1			
S. hydoreibatus				3	13					
S. tuivi					7	43	26	7	1	
S. julieni			4	4						
S. discotorquatus					4					
S. elegans				6	80	24	1			

	Transverse forward series													
	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S. oatea								1	1	2	1			
S. sapphirinus		2	3	6	7	8	6	5	3	2				
S. hydoreibatus					2	3	3	3	4					
S. tuivi							2	8	7	29	20	18	4	1
S. julieni		2	2	3	1									
S. discotorquatus		1	1	-	1	-	-1							
S. elegans		1	-	4	8	21	50	17	2	1				

Table II. - Continued.

	Predorsal scales (M: male, F: female)																	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
S. oatea M													1	1				
S. oatea F															1	1		1
S. sapphirinus M	27	-	1	-	-	-	1											
S. sapphirinus F	3	-	-	1	-	-	1	3	2	-	1	1	1					
S. hydoreibatus M		5	-	-	1													
S. hydoreibatus F			2	-	-	3	-	-	1	-	2	2	2	2	1			
S. tuivi M	10	6	7	8	6	2	7	6	8	4	5	1	-	2	1			
S. tuivi F		1	-	-	-	-	4	2	2	2	5	5	2	3	1			
S. julieni M											2		1	1	1			
S. julieni F														2	1			
S. discotorquatus M			2															
S. discotorquatus F									1		1							
S. elegans	2	-	1	-	1	3	7	12	15	23	33	11	2	1				

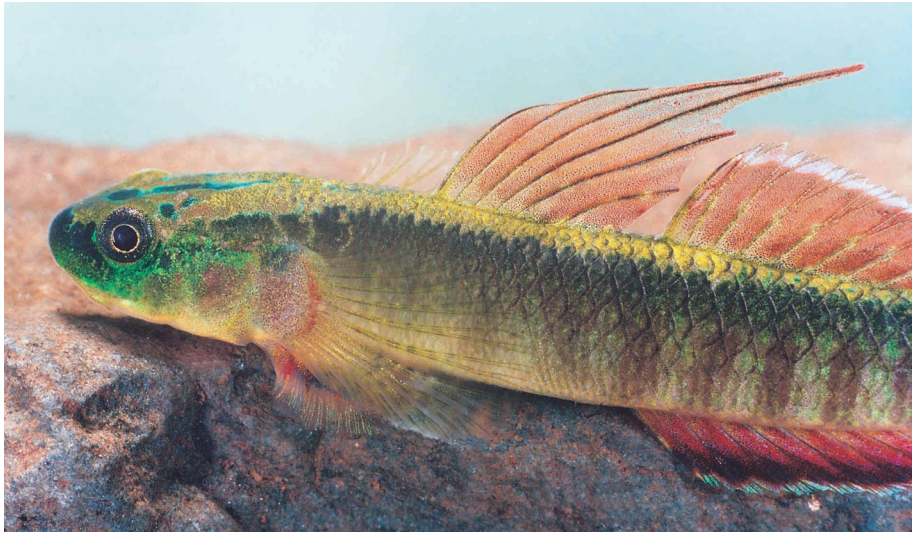

Figure 1. - *Stiphodon oatea*, holotype, MNHN 2009-160, male (26.1 mm SL); Tahuata, Marquesas Islands, French Polynesia; 16 Feb. 2000; Keith *et al.* coll. (Photo by E. Vigneux).

most rays extending beyond membrane but not appearing feathery or silky, lowermost 1 or 2 rays simple; pectoral fin oblong with posterior margin rounded. Caudal fin has 13 branched-rays, posterior margin rounded. Pelvic disc always has 1 spine and 5 stout and heavily branched segmented rays. Fifth rays joined together in their entire length forming a strong cup-like disc; disc adherent to belly between fifth rays only; between spines, a strong fleshy frenum.

Scales in lateral series 39 (33-38); those on caudal peduncle, sides and back are ctenoid and they become cycloid on the nape. Most anterior scale along midline near upper pectoral base. Scales in transverse backward series 10 (10-11). Scales in transverse forward series 15 (13-16). Scales in zigzag series 8 (8-9). More scales in predorsal midline in females (14-17) than in males 12 (12-13). Females usually have a few small cycloid scales close to urogenital papilla and anus. Few cycloid scales on males' belly. Head base is scaleless.

Premaxillary teeth 40 (40-49), fine and tricuspid, with central cup longer than lateral cusps. Dentary symphyseal teeth in males 3 (female, 2-3), conical to caniniform, stronger and larger.

Cephalic sensory pore system always A, B, C, D, F, H, K, L, N and O; pore D is singular, all others are paired. Oculoscapular canal separated into anterior and posterior canals between pores H and K. Cutaneous sensory papillae developed over lateral and dorsal surfaces of head.

Sexual dimorphism and dichromatism well developed with adult males always having bright coloration and longer second dorsal and anal fins than females. Females with more predorsal scales. Urogenital papilla in males somewhat rectangular with a rounded distal tip, while rectangular in females.

Table III. - Morphometrics in *Stiphodon oatea* and related species expressed as a percentage of standard length.

	Predorsal length														
	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
S. oatea							1		2		2				
S. sapphirinus							4	7	12	10	6	-	2		
S. hydoreibatus					1	-	3	2	5	-	1				
S. tuivi				10	12	16	20	15	11	2					
S. julieni	1	1	3	2	-	1									
S. discotorquatus				1	-	1	-	-	2						
S. elegans			4	7	14	24	27	21	13	2	-	-	1		

	Preanal length																
	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
S. oatea								2			1		1	1			
S. sapphirinus						3	2	11	6	6	8	2	2	-	1		
S. hydoreibatus							2	2	2	2	2	2					
S. tuivi			2	4	7	12	22	8	9	8							
S. julieni			1	3	-	2	1										
S. discotorquatus					1	1				1	-	1					
S. elegans	1	3	2	7	12	12	12	10	10	10	10	6	7	2			

	Head length								
	18	19	20	21	22	23	24	25	26
S. oatea				1	2		2		
S. sapphirinus			11	18	9	3			
S. hydoreibatus		1	4	3	4				
S. tuivi	1	1	22	35	27	10	2		
S. julieni	2	2	1	2	1				
S. discotorquatus				3	1				
S. elegans	1	2	16	23	34	26	7	4	

	Jaw length						
	5	6	7	8	9	10	11
S. oatea					1	3	1
S. sapphirinus			11	26	4		
S. hydoreibatus		1	6	3	1		
S. tuivi			18	37	23	9	1
S. julieni	1	-	6	1			
S. discotorquatus		1	1	-	2		
S. elegans		1	47	37	24	4	1

	Caudal peduncle length														
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
S. oatea		1	2			2									
S. sapphirinus								6	5	15	9	4	1	1	
S. hydoreibatus									2	2	7	1			
S. tuivi						3	6	12	28	22	10	5	-	1	
S. julieni								2	-	2	3	1			
S. discotorquatus											3	1			
S. elegans						3	1	8	48	30	22	4	5	-	1

	Caudal peduncle depth					
	7	8	9	10	11	12
S. oatea				2	1	2
S. sapphirinus		2	14	20	5	
S. hydoreibatus			7	5		
S. tuivi		4	17	54	13	
S. julieni			5	3		
S. discotorquatus			1	3		
S. elegans	14	6	35	41	15	1

	Body depth at second dorsal origin in males							
	9	10	11	12	13	14	15	16
S. oatea								2
S. sapphirinus			2	11	11	2		
S. hydoreibatus				1	1			
S. tuivi			3	6	20	22	7	4
S. julieni			1	5				
S. discotorquatus				1	1			
S. elegans				7	19	13	8	2

Table III. - Continued.

	Second dorsal fin length (M: male, F: female)																								
	26	27	28	29	30	31	32	33	34	35	36	37	38		39	40	41	42	43	44	45	46	47	48	49	50	51
S. oatea M																				11							
S. oatea F							1		1	1																	
S. sapphirinus M			1	-	-	1	-	3	2	-	1	7	3		3	3	3	1									
S. sapphirinus F				3	3	5	1	1																			
S. hydoreibatus M										1	-	-	-		-	-	1										
S. hydoreibatus F			1	-	4	1	2	-	1																		
S. tuivi M								1	-	-	-	1	9		8	7	11	13	5	4	5	1					
S. tuivi F				1	5	4	7	4	1																		
S. julieni M																			1	-	1	2	-	-	1		
S. julieni F						1	1	-	-	1																	
S. discotorquatus M											1	-	-		-	-	1										
S. discotorquatus F			1	1																							
S. elegans M								2	1	2	-	1	2		-	4	2	4	4	5	8	2	2	2	3	4	2
S. elegans F				2	5	7	7	9	7	13	8	3	-		1												

	Anal fin length (M: male, F: female)																										
	27	28	29	30	31	32	33	34	35	36	37	38	39		40	41	42	43	44	45	46	47	48	49	50	51	52
S. oatea M																					1	1					
S. oatea F								2	1																		
S. sapphirinus M					1	1	-	1	-	-	5	1	4		5	5	3	-	2								
S. sapphirinus F			1	1	3	3	3	-	2																		
S. hydoreibatus M															1	-	-	-	-	1							
S. hydoreibatus F				1	-	1	2	2	3	-	-	1															
S. tuivi M									4	3	3	8	13		8	13	7	2	3	1							
S. tuivi F			2	2	5	2	2	2	4	1	2																
S. julieni M																			1	2	1	1					
S. julieni F					1	1	-	-	-	1																	
S. discotorquatus M															2												
S. discotorquatus F								1	1																		
S. elegans M								1	-	1	1	1	1		1	6	3	2	5	10	6	4	3	1	-	1	1
S. elegans F			1	1	1	6	2	7	13	13	7	7	3		1												

	Caudal fin length (M: male, F: female)													
	17	18	19	20	21	22	23	24	25	26	27	28	29	30
S. oatea M										2				
S. oatea F					2		1							
S. sapphirinus M			2	-	2	3	5	11	2	2	-	1		
S. sapphirinus F			1	-	2	5	2	3	1					
S. hydoreibatus M								1	-	-	-	1		
S. hydoreibatus F				1	-	3	3	1	1	-	1			
S. tuivi M	1	1	2	19	13	14	10	4	1					
S. tuivi F		2	6	8	4	2								
S. julieni M					1	1	1	-	2					
S. julieni F	3													
S. discotorquatus M				1	-	-	-	-	-	-	1			
S. discotorquatus F						1	1							
S. elegans M				2	2	1	1	5	13	13	7	1	3	3
S. elegans F				4	5	7	14	19	10	2				

Colour in preservation

Males. - Background of body brownish, darker on the back; 8 to 10 vertical brown stripes visible on the back and the upper part of the flanks from origin of the head to caudal peduncle; belly yellowish. Background of head yellowish; snout dusky; upper lip blackish; nape brownish, branchiostegal rays and membrane slightly yellowish, breast yellowish. Anal fin, first and second dorsal fins greyish but hyalines. Pectoral fins are hyaline and pectoral base is slightly dusky.

Females. - Background coloration of head and body mostly cream; a bold but rather blotchy black band extends from tip of snout terminating close to medial region of the hypural base; a second weak brownish band originates as a bar between the nostrils and continues through the eye to dorsal surface of caudal peduncle just posterior to second dorsal fin; a black spot posterior to this on upper caudal peduncle; the back is brown. Anal fin, first and second dorsal fins greyish but hyaline, sometimes with small dots. Pectoral fins are hyalines. The belly is whitish to greyish.

Colour in life

Males (Fig. 1). - The coloration of males is characteristic: they have yellow green colours on head and back, bright red dorsal, caudal and anal fins and 8 to 10 vertical brown stripes on flanks. More precisely, the body has a longitudinal bright yellow stripe on the flanks and continuing along the head. The cheeks are yellow to green and the snout is bright green. The lower part of the head is green to yellow, the upper yellow to blue. The belly is yellowish to brownish. The back is yellow to green dark with 8 to 10 brownish areas alternating with green ones in the middle part. Anal fin, caudal, first and second dorsal fins are reddish; the anal fin has a scarlet dark red stripe in the lower part. Second dorsal and anal fins with a white to blue line in the distal part. Pectoral fins hyaline, with some yellowish pigments along the rays.

Females. - Body generally yellowish to brownish; dusky markings as in preservation: a blotchy black band extends from tip of snout terminating close to medial region of the hypural base; a second brownish band originates as a bar between the nostrils and continues through the eye to dorsal surface of caudal peduncle just posterior to second dorsal fin; a black spot posterior to this on upper caudal peduncle. Belly whitish to yellowish.

Distribution

Known from rivers of Tahuata Island, Marquesas, French Polynesia. It probably exists on other islands in Marquesas.

Ecology

Stiphodon oatea is found in clear and calm streams with sandy or slightly rocky bottom and large pools. It lives on the bottom of the river. This species was observed from sea level to 40 meters high in altitude. This species is thought to spawn in freshwater, like *Sicyopterus* (Keith *et al*., 2004), *Sicydium* (Bell *et al*., 1995) *Cotylopus* (Keith *et al*., 2005), *Lentipes* (Watson *et al*., 2002), *Awaous* (Keith *et al*., 2000), *Akihito* (Watson *et al*., 2007; Keith *et al*., 2007a) or the other *Stiphodon* (Watson *et al*. 2005), with free embryos drifting downstream to the sea where they undergo a planktonic phase, before returning to the rivers to grow and reproduce (Keith, 2003; Keith *et al*., 2008). Hence they are qualified as amphidromous (*sensu* McDowall, 1997). These gobies contribute most to the diversity of fish communities in the Indo-Pacific insular systems, have the highest levels of endemism (Keith *et al*., 2006; Lord and Keith, 2007) and must be protected (Keith and Marion, 2002).

Comparison

Stiphodon oatea differs from all other species in the area in having more scales in longitudinal series and more scales in predorsal series in male and females, and in having longer predorsal length, head length and body depth at second dorsal origin in males.

Etymology

The species is named *oatea* to honour Oatea, who has created in "the earth of men legend" for his wife Atanua, Henua Enana ("the earth of men"), the Marquesas Islands. The new name is treated as a noun in apposition.

Acknowledgments. - We thank the following for help and assistance during the various trips and expeditions to Polynesia: the Environment Unit of French Polynesia for its interest and concerns about the conservation of native fauna, the Rural Development Service which played a major role in the success of the freshwater survey, and particularly Ms. Y. Vernaudon and Mrs. C. Butin, A. Bruneau, T. Richmond, L. Hutaouoho, B. Kohumoetini and C. Apuarii.

REFERENCES

AKIHITO, 1986. - Some morphological characters considered to be important in gobiid phylogeny. *In:* Indo-Pacific Fish Biology: Proceedings of the Second International Conference on Indo-Pacific Fishes (Uyeno T., Arai R., Taniuchi T. & Matsuura K., eds.), pp. 629-639. Tokyo: Ichthyological Society of Japan.

BELL K.N.I., PEPIN P. & BROWN J.A., 1995. - Seasonal, inverse cycling of length and age at recruitment in the diadromous gobies *Sicydium punctatum* and *Sicydium antillarum* in Dominica, West Indies. *Can J. Fish. Aquat. Sci.,* 52: 1535-1545.

KEITH P., 2003. - Biology and ecology of amphidromous Gobiidae of the Indo-Pacific and the Caribbean regions. *J. Fish Biol.,* 63: 831-847.

KEITH P. & MARION L., 2002. - Methodology for drawing up a Red List of threatened freshwater fish in France. *Aquat. Conserv.,* 12: 169-179.

KEITH P. & VIGNEUX E., 2002. - Revue des crustacés Atyidae et Palaemonidae de Polynésie française avec description d'une nouvelle espèce de *Macrobrachium*. *Bull. Fr. Pêche Piscicult*., 364: 121-145.

KEITH P. & MARQUET G., 2007. - *Stiphodon rubromaculatus*, a new species of freshwater goby from Futuna Island (Teleostei: Gobioidei: Sicydiinae). *Cybium,* 31(1): 45-49.

KEITH P., WATSON R.E. & MARQUET G., 2000. - Découverte d'*Awaous ocellaris* (Broussonet, 1782) (Perciformes, Gobiidae) en Nouvelle-Calédonie et au Vanuatu et conséquences biogéographiques. *Cybium*, 24(4): 350-400.

KEITH P., VIGNEUX E. & MARQUET G., 2002a. - Atlas des poissons et crustacés d'eau douce de la Polynésie française. *Patrimoines Nat., (MNHN)*, 55: 1-175.

KEITH P., WATSON R.E. & MARQUET G., 2002b. - *Stiphodon julieni*, a new species of freshwater goby (Teleostei: Gobioidei) from Rapa, French Polynesia. *Bull. Fr. Pêche Piscicult.*, 364: 161-171.

KEITH P., WATSON R.E. & MARQUET G., 2004. - *Sicyopterus aiensis,* a new species of freshwater goby (Teleostei: Gobioidei) from Vanuatu, South Pacific. *Cybium,* 28(2): 111-118.

KEITH P., HOAREAU T. & BOSC P., 2005. - A new species of freshwater goby (Pisces: Teleostei: Gobioidei) from Mayotte Island (Comoros) and comments about the genus *Cotylopus* endemic to Indian Ocean. *J. Nat. Hist.,* 39(17): 1395-1405.

KEITH P., LORD C. & VIGNEUX E., 2006. - *In vivo* observations on postlarval development of freshwater gobies and eleotrids from French Polynesia and New Caledonia. *Ichthyol. Explor. Freshw.,* 17: 187-191.

KEITH P., MARQUET G. & WATSON R.E., 2007a. - *Akihito futuna*, a new species of freshwater goby from the South Pacific (Teleostei: Gobioidei: Sicydiinae). *Cybium*, 31(4): 471-476.

KEITH P., MARQUET G. & WATSON R.E., 2007b. - *Stiphodon kalfatak,* a new species of freshwater goby from Vanuatu (Teleostei: Gobioidei: Sicydiinae). *Cybium*, 31(1): 33-37.

KEITH P., HOAREAU T.B., LORD C., AH-YANE O., GIMONNEAU G., ROBINET T. & VALADE P., 2008. - Characterisation of post-larval to juvenile stages, metamorphosis, and recruitment of an amphidromous goby, *Sicyopterus lagocephalus* (Pallas, 1767) (Teleostei: Gobiidae: Sicydiinae). *Mar. Freshw. Res.,* 59(10): 876-889.

LEVITON A.E., GIBBS R.H., HEAL E. & DAWSON C.E., 1985. - Standards in herpetology and ichthyology: Part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia,* 1985: 802-832.

LORD C. & KEITH P., 2008. - Threatened fishes of the world: *Sicyopterus sarazini* Weber & De Beaufort (Gobiidae). *Environ. Biol. Fish.,* 83: 169-170.

McDOWALL R.M., 2007. - On amphidromy, a distinct form of diadromy in aquatic organisms. *Fish Fish.,* 8: 1-13.

PARENTI L.R. & MACIOLEK J.A., 1996. - *Sicyopterus rapa*, new species of sicydiine goby (Teleostei: Gobiidae) from Rapa, French Polynesia. *Bull. Mar. Sci.*, 58: 660-667.

WATSON R.E., 1995. - Gobies of the genus *Stiphodon* from French Polynesia, with descriptions of two new species (Teleostei: Gobiodei: Sicydiinae). *Ichthyol. Explor. Freshw.*, 6: 33-48.

WATSON R.E., KEITH P. & MARQUET G., 2002. - *Lentipes kaaea*, a new species of freshwater goby from New Caledonia (Teleostei: Gobioidei: Sicydiinae). *Bull. Fr. Pêche Piscicult.,* 364: 173-185.

WATSON R.E., KEITH P. & MARQUET G., 2005. - *Stiphodon sapphirinus*, a new species of freshwater goby of New Caledonia (Teleostei: Gobioidei: Sicydiinae). *Cybium,* 29(4): 339-345.

WATSON R.E., KEITH P. & MARQUET G., 2007. - *Akihito vanuatu*, a new genus and new species of freshwater goby from the South Pacific (Teleostei: Gobioidei: Sicydiinae). *Cybium*, 31(3): 341-349.

Reçu le 6 juin 2009.
Accepté pour publication le 23 novembre 2009.